PATENT SPECIFICATION

DRAWINGS ATTACHED

Inventors: JOHN HEWITT, REGINALD HERBERT COLLINS and DESMOND WILLIAMS

914,552

Date of filing Complete Specification July 13, 1959.

Application Date July 15, 1958. *No. 22670/58.*

Complete Specification Published Jan. 2, 1963.

Index at acceptance:—Classes 36, C3B(3:5:6), C3BX; and 87(2), A1R(14C2:14D:39X).

International Classification:—**H01b, B29d, g.**

COMPLETE SPECIFICATION

Improvements in or relating to Shedded Electrical Insulators

We, THE ENGLISH ELECTRIC COMPANY LIMITED, of Queens House, 28, Kingsway, London, W.C.2, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to shedded electrical insulators, that is to say to insulators of generally cylindrical form provided with a series of outwardly-projecting annular sheds, these sheds serving to lengthen the electrical creepage path between the ends of the insulator and to ensure that atmospheric dust or moisture deposited on the surface of the insulator cannot form a continuous conductive path throughout its length. In the majority of insulators, which are intended for mounting with their axes vertical, or at an angle other than horizontal, the sheds of the insulator are arranged to project outwardly and downwardly from the body of the insulator. An insulator intended for horizontal mounting may have its sheds, which in this case serve primarily to lengthen the insulator creepage path, formed as flat annular projections from its body.

According to the invention, a shedded electrical insulator comprises two or more sections each formed as an annular member of thermosetting-resin-bonded fibre-reinforced material defined by surfaces of revolution about the axis of the insulator, the sections nesting together to form the insulator and at least one section having an outwardly-projecting shed formed integral therewith. Preferably the shed is formed by an outwardly-flared end portion at one edge of the annular member. Preferably also the sections are bounded by planes normal to the axis.

The nesting sections may be cemented together, or may be retained in position by placing the entire insulator in compression, as by stressing a central conductor stalk of the assembly.

According to a feature of the invention, at least the sheds and other external parts of the sections are made of such material, or are coated with or impregnated with such a material, that carbon deposited or formed on the insulator surface is oxidised to prevent the formation of a tracking path. The sections are preferably formed from epoxy-resin-bonded glass-fibre-reinforced material, which may itself include an oxidising agent; but preferably the external surfaces of such a section are coated with butyl rubber containing an oxidising agent.

The drawing accompanying the provisional specification illustrates diagrammatically a section of a shedded electrical insulator embodying the preferred form of the invention.

In the drawing, the reference 10 denotes the individual sections of the insulator, each section comprising a short truncated conical body section 11 and a divergent shed 12. The upper, smaller end of each section 10 nests within the lower end of the section immediately above it, the sections being retained together either by cementing or by maintaining the stack of sections in compression.

The sections 10 are formed by shaping a mat of glass-fibre reinforcement in a mould to the appropriate section, impregnating it with an epoxy resin and curing the resin. The outer surfaces of the conical sections 11, and both surfaces of the sheds, 12, are coated with butyl rubber containing an oxidising agent, preferably hydrated alumina.

An alternative method of construction is to stretch a knitted "stocking" of glass cloth over a male mould, repeating until a number of layers are built up, and then impregnating

with resin after the female mould is placed over the assembly.

Tracking paths between the ends of the insulator can be formed either by the deposition of atmospheric carbon on the surface of the insulator or by the decomposition of the carboniferous material of the sections 10 should a flash-over occur between the ends of the insulator. The oxidising agent contained in the butyl rubber oxidises such carbon to prevent the formation of a permanent tracking path.

It will be seen that the general construction of nesting sections employed in the manufacture of this insulator enables insulators of varying length to be readily prepared from stock sections, and the insulator may readily be dismantled to permit the replacement of a damaged section. The glass-fibre-reinforced resin sections are stronger than the ceramic insulating materials hitherto employed for this purpose, thus simplifying the construction of the insulator and of the apparatus of which it forms part.

WHAT WE CLAIM IS:—

1. A shedded electrical insulator comprising two or more sections each formed as an annular member of thermosetting-resin-bonded fibre-reinforced material defined by surfaces of revolution about the axis of the insulator, the sections nesting together to form the insulator, and at least one section having an outwardly-projecting shed formed integral therewith.

2. An insulator as claimed in Claim 1 wherein the shed is formed by an outwardly-flared end portion at one edge of the annular member.

3. An insulator as claimed in Claim 1 or Claim 2 wherein the sections are bounded by planes normal to the axis.

4. An insulator as claimed in any of Claims 1 to 3, wherein the sections are formed of epoxy-resin-bonded glass-fibre-reinforced material.

5. An insulator as claimed in any of Claims 1 to 4 wherein at least the sheds and other external parts of the sections are made of such material or are coated with or impregnated with such material that carbon deposited or formed on the insulator surface is oxidised to prevent the formation of a tracking path.

6. An insulator as claimed in Claim 5 when dependent on Claim 4 wherein said epoxy-resin-bonded glass-fibre-reinforced material includes an oxidising agent.

7. An insulator as claimed in Claim 5 wherein the external parts of the sections are coated with butyl rubber containing an oxidizing agent.

8. An insulator as claimed in Claim 7, wherein the oxidising agent is hydrated alumina.

9. A hollow shedded electrical insulator substantially as herein described with reference to the drawing accompanying the provisional specification.

D. WHALEY,
Chartered Patent Agent.

Leamington Spa: Printed for Her Majesty's Stationery Office by the Courier Press.—1963.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained.

914552 PROVISIONAL SPECIFICATION

1 SHEET *This drawing is a reproduction of the Original on a reduced scale*